

# ProScan® 3

## Continuous Radar Level Sensor (80GHz)



### Features

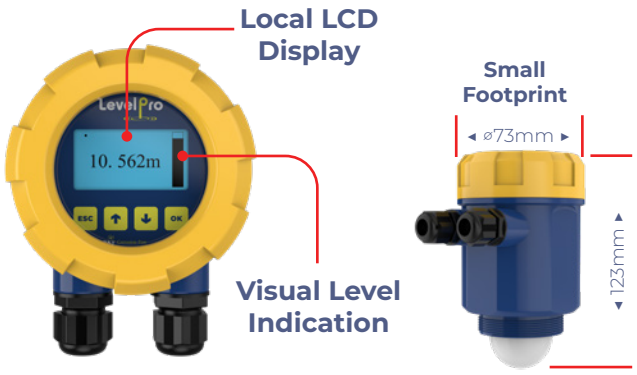
- ✔ Bluetooth Connectivity
- ✔ Excellent Reliability and Accuracy
- ✔ Data Logging
- ✔ Signal Damping
- ✔ Not Affected by Vapor or Outgassing
- ✔ Polypropylene Transducer
- ✔ Integrated Spirit Bubble for Easy Leveling
- ✔ RS-485 Communication | 4-20mA
- ✔ Measurement Under Vacuum | High Pressure
- ✔ Unaffected by Temperature Fluctuations
- ✔ NEMA 4X | IP68 Protection

### The future of non-contact level measurement is radar technology!

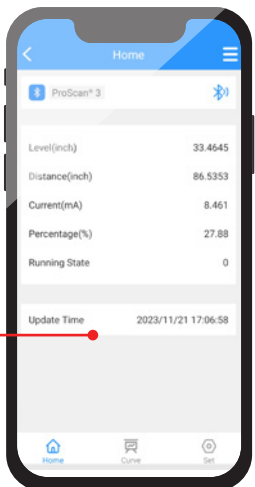
The ProScan® 3 80 GHz high frequency technology permits a significantly more precise transmission signal focus. This makes it easier to distinguish between actual level signals and interference signals, making the measurement more reliable coupled with a higher degree of accuracy.

The new ProScan® 3 series of compact instruments are ideally suited for more complex level applications.

The 80 GHz radar signal is capable of penetrating through the top lid of a tank, eliminating the need for a bulkhead fitting, or having the sensor subject to the conditions inside the tank.



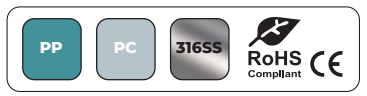
Easy Wiring



Monitor Your ProScan® 3 with the Free App



- Save Time
- Keyed to ensure accurate connection
- Order Cable to Custom Length
- Watertight Connection



### Specifications

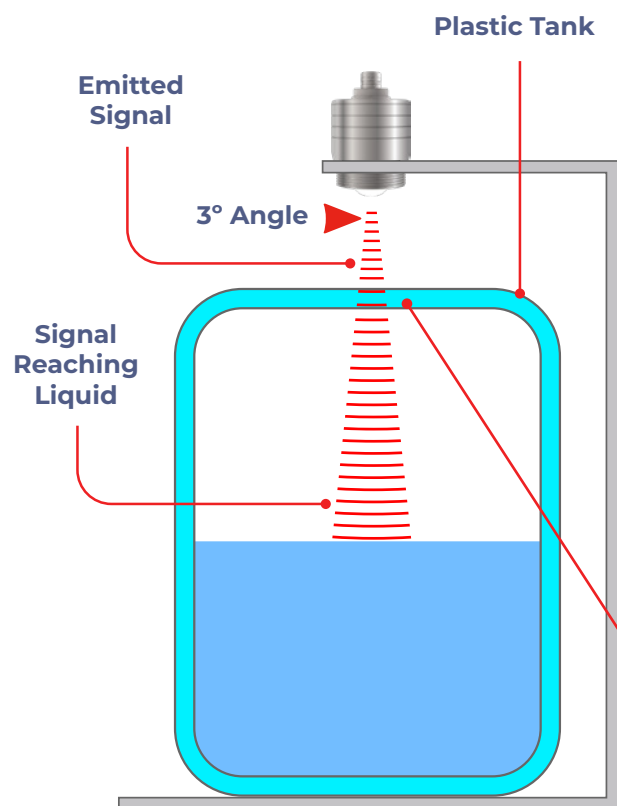
Measuring Performance	
Minimum Range	0.1m
Maximum Range	20m
Resolution	1mm
Azimuth Beam Width (3 dB)	3°
Elevation Beam Width (3 dB)	3°
Measurement Accuracy	±2mm
Set-up Time	1s

Operating Conditions	
Operating Frequency Band	76 – 81 GHz
Mains Power Supply	9 – 24 VDC
Operating Average Current	20 mA
Effective Isotropic Radiated Power	13 dBm
Communication Interface	4-20mA   RS485
Enclosure Protection	NEMA 4X   IP68
Operating Temperature Range	-49°F – +185°F   -45°C – +85°C

Housing & Mounting		
Housing Material	PP+PC Body   PP Transducer	316 SS+PC Body   PP Transducer
Weight	280g	770g
Installation	Mounting Bracket	

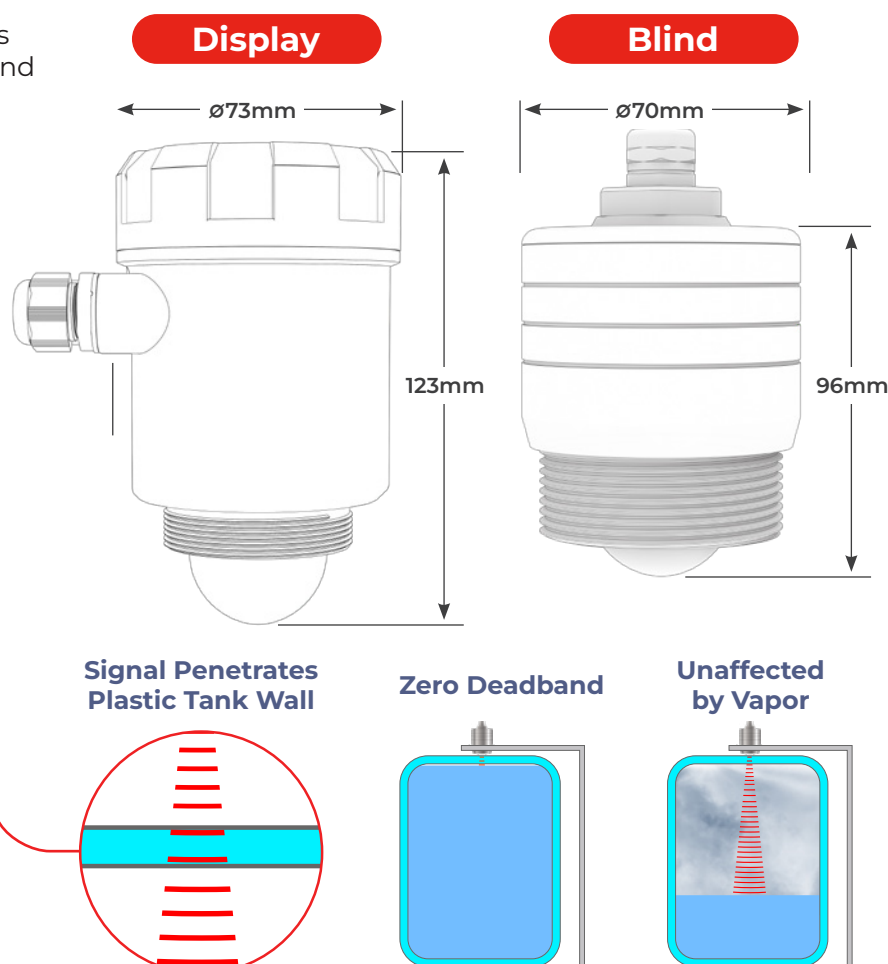
### Working Principle

The **ProScan® 3** (80GHz) radar is a transmitter for continuous level measurements using fast sweep Frequency Modulated Continuous Wave (FMCW) technology. The transducer of radar continuously emits signal sweeps with a constant frequency towards the liquid surface. The reflected signal is then captured by the transducer. The time to send and receive is known as the time of flight.



### Temporarily Installed Vessel

A benefit can be realized by measuring the level in plastic intermediate bulk containers (IBC) or plastic totes.



### Advantages of Measuring Top of Tank

#### High Purity Liquids

In high purity applications, measuring through the vessel eliminates any concerns the sensor or process connection could contaminate the material inside.

#### Highly Corrosive Material

Often, highly corrosive materials are stored in plastic vessels. If the tank does not have to be opened there is less risk of material leaking or off-gassing from the vessel. Additionally, the level sensor does not have to be constructed of exotic materials in order to function in a hostile measuring environment.

#### High Temperature or Pressure Vessels

Measuring through the top of vessels allows for radar to be used on vessels that exceed the temperature and pressure specifications of the radar transducer.

#### Mounting Considerations

Sight glasses inclined at least  $10^\circ$  are preferred. This is so that energy that does not penetrate the glass will reflect away from the sensor.

The narrow beam ( $3^\circ$ ) of the 80 GHz **ProScan® 3** allows mounting above a sight glass and above a tall nozzle. Make sure that there is a clear path for the reflected energy to travel away from the sensor.

#### The partial signals reflected by the top of the vessel will be detected by the sensor. Steps can be taken to minimize this false reflection.

- ▶ It is best if the vessel is located indoors. Any moisture or precipitation that is on the outer surface of the vessel or cover below the sensor will greatly impact the measurement. It could prevent accurate measurement when outdoors. Construct a special cover that prevents snow, rain, and condensation from forming or settling between the sensor and the plastic tank top.
- ▶ Place the sensor over a curved portion of the plastic tank. Any reflected signals can be reflected laterally instead directly back up to the transducer surface.
- ▶ Place the sensor at least 100 mm (4 in) above the surface of the plastic tank. This gives the reflected signals the space to move laterally away from the sensor.
- ▶ An inclined surface also helps any moisture or condensation that forms on the inside of the vessel to drip away.
- ▶ On a plastic or FRP tanks, make sure the sensor is not too close to the sidewall. Avoid metallic objects outside of the vessel that can be detected by the sensor.
- ▶ Ensure that the radar signal strikes the surface of the liquid at a  $90^\circ$  angle.

### Model Selection

**Polypropylene Body: PS38000 (display), PS38000B (blind)**

**316 SS Body: PS38000S**

